



Alpha Magnetic
Spectrometer NASA / DOE

Open Paper Management Tool Open Items Report



National Aeronautics and
Space Administration

Friday, March 03, 2006

Open Paper Management Tool (OPMT) Statistics

<i>Total Action Items:</i>	<i>578</i>	<i>Total Action Items Open:</i>	<i>49</i>
<i>Total Action Items Closed:</i>	<i>529</i>	<i>Action Items Past Due:</i>	<i>43</i>

List of Action Items Past Due:

<i>Action Item Number:</i>	<i>Date Due:</i>	<i>Action Item Number:</i>	<i>Date Due:</i>	<i>Action Item Number:</i>	<i>Date Due:</i>
<i>Action Item 04-051</i>	<i>08/30/2005</i>	<i>Action Item 05-076</i>	<i>2/1/2006</i>	<i>AMS_02-TTCS_PDR-12</i>	<i>07/15/2005</i>
<i>Action Item 04-056</i>	<i>08/15/2005</i>	<i>Action Item 05-080</i>	<i>12/01/2005</i>	<i>AMS_02-TTCS_PDR-19</i>	<i>07/15/2005</i>
<i>Action Item 04-120</i>	<i>08/15/2005</i>	<i>Action Item 05-081</i>	<i>12/01/2005</i>	<i>AMS_02-TTCS_PDR-20</i>	<i>07/15/2005</i>
<i>Action Item 05-018</i>	<i>10/01/2005</i>	<i>AMS_02-CDR-08</i>	<i>1/3/2006</i>	<i>AMS_02-TTCS_PDR-25</i>	<i>06/30/2005</i>
<i>Action Item 05-022</i>	<i>11/21/2005</i>	<i>AMS_02-PDS_CDR-06</i>	<i>06/15/2005</i>	<i>UPS-CDR-04</i>	<i>1/3/2006</i>
<i>Action Item 05-023</i>	<i>10/17/2005</i>	<i>AMS_02-PDS_CDR-08</i>	<i>05/16/2005</i>		
<i>Action Item 05-024</i>	<i>11/21/2005</i>	<i>AMS_02-PDS_CDR-09-2</i>	<i>05/16/2005</i>		
<i>Action Item 05-039</i>	<i>1/3/2006</i>	<i>AMS_02-Thermal_CDR-17</i>	<i>1/31/2006</i>		
<i>Action Item 05-044</i>	<i>10/28/2005</i>	<i>AMS_02-Thermal_CDR-57</i>	<i>2/15/2006</i>		
<i>Action Item 05-048</i>	<i>2/1/2006</i>	<i>AMS_02-Thermal_CDR-82</i>	<i>12/01/2005</i>		
<i>Action Item 05-049</i>	<i>2/1/2006</i>	<i>AMS_02-TTCS_PDR-2</i>	<i>07/15/2005</i>		
<i>Action Item 05-054</i>	<i>09/30/2005</i>	<i>AMS_02-TTCS_PDR-3</i>	<i>07/15/2005</i>		
<i>Action Item 05-060</i>	<i>1/3/2006</i>	<i>AMS_02-TTCS_PDR-5</i>	<i>2/6/2006</i>		
<i>Action Item 05-065</i>	<i>1/1/2006</i>	<i>AMS_02-TTCS_PDR-6</i>	<i>07/15/2005</i>		
<i>Action Item 05-067</i>	<i>1/15/2006</i>	<i>AMS_02-TTCS_PDR-7</i>	<i>07/15/2005</i>		
<i>Action Item 05-068</i>	<i>10/31/2005</i>	<i>AMS_02-TTCS_PDR-8</i>	<i>07/15/2005</i>		
<i>Action Item 05-069</i>	<i>09/30/2005</i>	<i>AMS_02-TTCS_PDR-9</i>	<i>07/15/2005</i>		
<i>Action Item 05-072</i>	<i>1/1/2006</i>	<i>AMS_02-TTCS_PDR-10</i>	<i>07/15/2005</i>		
<i>Action Item 05-075</i>	<i>12/01/2005</i>	<i>AMS_02-TTCS_PDR-11</i>	<i>07/15/2005</i>		

Open Action Items Report

Open Item Number: 04-051

RID Open Date: 8/1/2004

Title:

Intiator(s):

Description:

Action Item Information

Actionee(s): OZ/Bob Miley

Action Due Date: 8/30/2005

Action: Complete and sign AMS PIA.

Action Status: 2/24/2006 - Scheduled to present at SEWG on 3/7 - PIA will be forwarded for signature once SEWG approves.
1/6/2006 - New words approved by all parties - trying to get on agenda at SEWG for ISS approval.
11/14/2005 - New text for SSRMS section to be provided by Tim Urban by 12/8.
10/17/2005 - All issues resolved except SSRMS power/current requirements. Draft text under review by CGS.
8/26/2005 - Based on agreement with Hartman, OZ will attempt to sign PIA prior to October TIM. OZ FY2006 AMS funding under review.
8/8/2005 - Hartman meeting moved to 8/26. PIA CR release moved to 9/9. PIA signataure still scheduled for 12/1.
5/25/2005 - Meeting scheduled with Dan Hartman on 7/13 to resolve all final issues, PIA scheduled to be signed on 8/30. Specific TBDs being transferred into new OPMT items 05-010, 05-011, and 05-012.
3/02/2005 - It will be three weeks before it is known the amount of power to be provided. It will not be 3kW. Win Reid/OZ to set up meeting with Chris Tutt, Trent Martin, Craig Clark, John Cornwell, and Henry Hoang. Due date for this action item was changed to June 30, 2005.
02/09/2005 - ISS ICD – turning in PIA baselined first. Plan to remove the TBRs. Win Reid to check on the actions on the ISS side.

Open Action Items Report

Open Item Number: 04-056

RID Open Date: 8/1/2004

Title:

Initiator(s):

Description:

Action Item Information

Actionee(s): Chris Tutt/ESCG
Bill Hungerford/AMS
Paul Nemeth/ESCG

Action Due Date: 8/15/2005

Action: *Provide the plan for Surveillance of Safety Critical assembly and test steps of Collaboration Hardware.*

Action Status: 12/5/2005 - JS has begun reviewing Hazard Reports and assigning actionees for the various verifications.
8/15/2005 - Initial surveillance request due out by 8/30/2005.
8/3/2005 - Chris Tutt to review current schedule and SVMs and send out verification requests to relevant parties. MVP still in work, so Surveillance Plan on hold.
2/9/2005 - Mike Fohey and David Kaplan to discuss the MVP schedule. The MVP is a deliverable on the ESCG contract and is to be delivered no later than 8 months from February 1, 2005.

Open Action Items Report

Open Item Number: 04-120

RID Open Date: 12/6/2004

Title:

Intiator(s):

Description:

Action Item Information

Actionee(s): Leland Hill/ESCG

Action Due Date: 3/31/2006

Action: *Work with all AMS experimenters to close out all open issues associated with the Phase II Flight Safety Review Safety Data Package.*

Action Status: *1/6/2006 - Date rolled to 3/31/2006.*

12/7/2005 - JS to send out request for review to all the detector leads who haven't yet responded to the CR.

8/29/2005 - Release date now presumed to be 9/9. All comments still to be incorporated by 9/30.

8/15/2005 -Draft versions of the writeup due by 8/31, full JSC review and all comments incorporated by 9/30.

8/8/2005 - Trent Martin to send updated list of final items to various group leads.

6/29/2005 - Letter describing all open actions has been distributed to the collaboration.

4/27/2005 - New set of actions in work. Some actions have been answered. Addressing specific organizations/individuals that have not responded. Safety package should be ready by the end of June to distribute to the collaboration approximately two weeks before the July TIM. Responses from the collaboration will be due prior to or during the TIM. The safety package will be updated and redistributed to the collaboration after the TIM. Trent Martin/EA2 requested to see a status of action items at each CCB/Tag-up meeting. Per Trent Martin/EA2, hold firm to the May 31st due date for new list of action items.

1/19/05 - Some data has been received since the October TIM and January TIM; Some data not due until March 2005; Due date was changed from 1/31/05 to 3/31/05; Final Safety Data Package due 03/08/05.

Open Action Items Report

Open Item Number: 05-018

RID Open Date: 8/22/2005

Title: Thermal Testing Requirements

Intiator(s): Tim Urban

Description: UPS worst case hot temperature including magnet charging needs to be included in thermal ICD and thermal test plans.

Action Item Information

Actionee(s): Tim Urban

Action Due Date: 10/1/2005

Action: Upon completion of 05-017, update CSIST SOW to ensure that thermal testing done to appropriate temperature levels.

Action Status: 3/3/2006 - SOW complete and in review cycle.

2/14/2006 - Final version of SOW due out this week.

1/6/2006 - The SOW has been updated, but action will be held open until contract signed.

12/5/2005 - Initial inputs received from SCL, under review at JS.

11/14/2005 - Updated SOW released for review - awaiting comments from Judith Jeevarajan/EP.

Open Action Items Report

Open Item Number: 05-022

RID Open Date: 9/13/2005

Title: Cryosystem Component Testing

Initiator(s):

Description: Demonstrate how cryosystem components will be validated with a non-cryogenic STA.

Action Item Information

Actionee(s): Chris Tutt/ESCG, Stephen Harrison/SCL, Phil Mott/ESCG

Action Due Date: 11/21/2005

Action: Develop plan for validating all cryosystem components, either through component level testing or analysis.

Action Status: 2/10/2006 - TIM discussion absorbed into generic discussion of magnet schedule risks. Final decision awaits further guidance from Collaboration.

1/6/2006 - Initial list to be created and reviewed in splinter meeting at upcoming TIM.

Open Action Items Report

Open Item Number: 05-023

RID Open Date: 9/13/2005

Title: STA Gate Valve

Intiator(s):

Description: APO will provide the gate valve for the STA article using a single-seal off-the-shelf valve.

Action Item Information

Actionee(s): Phil Mott/ESCG

Action Due Date: 10/17/2005

Action: Procure requested gate valve and provide to SCL for integration onto the STA VC.

Action Status: 1/6/2006 - Gate valve procurement will be added to upcoming SCL contract.
11/10/2005 - Gate valve will be provided to SCL instead of to building 10.

Open Action Items Report

Open Item Number: 05-024

RID Open Date: 9/13/2005

Title: Flight Unit Gate Valve

Initiator(s):

Description: Flight VC requires gate valve with double-seals.

Action Item Information

Actionee(s): Phil Mott/ESCG, Stephen Harrison/SCL

Action Due Date: 11/21/2005

Action: Design modified gate valve incorporating double O-ring seals and provide to SCL for installation onto the flight unit.

Action Status: 2/14/2006 - Work added to upcoming SCL contract.
1/6/2006 - Situation to be reviewed at upcoming TIM.

Open Action Items Report

Open Item Number: 05-039

RID Open Date: 9/13/2005

Title: Total Mass Capability of USS-02

Intiator(s):

Description: Determine total mass capability of USS-02

Action Item Information

Actionee(s): Chris Tutt/ESCG, Bruce Sommer/ESCG

Action Due Date: 1/3/2006

Action: Review structural analysis of AMS-02 and develop first-order estimate for how much additional mass can be carried without modifying the existing structure.

Action Status: 2/10/2006 - Preliminary results show positive margins with 15,100 lb total weight for liftoff/landing. ISS assessment still needs to be done.
1/6/2006 - Preliminary results to be presented at upcoming TIM.
11/14/2005 - Models being updated now. Analysis will be run by end of the year and ESCG will provide the collaboration with a summary and recommendations. Date changed to 1/3 to better reflect work schedules.

Open Action Items Report

Open Item Number: 05-042

RID Open Date: 9/14/2005

Title: Helium Venting Hazard Analysis

Intiator(s):

Description: Provide hazard analysis for venting of helium from the main tank.

Action Item Information

Actionee(s): Chris Tutt/ESCG

Action Due Date: 3/1/2006

Action: Take existing hazard analysis of helium venting presented to NASA and create stand-alone report for delivery to ESTEC.

Action Status: 11/14/2006 - Date changed to 3/1 to better reflect analyst workloads.

Open Action Items Report

Open Item Number: 05-043

RID Open Date: 9/14/2005

Title: Helium Venting Hazard Analysis

Intiator(s):

Description: Provide hazard analysis for venting of helium from the main tank.

Action Item Information

Actionee(s): Gaetan Piret/ESTEC

Action Due Date: 4/1/2006

Action: Upon delivery of hazard analysis described in 05-042, evaluate potential hazards to EMI and TV test chambers.

Action Status: 11/12/2006 - Date changed to 4/1/2006 to match item 05-042.

Open Action Items Report

Open Item Number: 05-044

RID Open Date: 9/14/2005

Title: Burst Disk Vent Lines

Intiator(s):

Description: Attaching a vent line to the burst disk vent location would simplify test setup.

Action Item Information

Actionee(s): Phil Mott/ESCG

Action Due Date: 10/28/2005

Action: Evaluate feasibility of attaching a vent line at the main tank burst disk vent location.

Action Status: 2/14/2006 - Venting data provided by SCL, under review by JS.

1/6/2006 - Data requested included in last SCL contract modification.

11/4/2005 - Simple diverter may be more feasible than a fill vent line. SCL to provide exact venting locations, expected volumes, and plume temperatures to JS. JS to review and develop preliminary design.

Open Action Items Report

Open Item Number: 05-048

RID Open Date: 9/14/2005

Title: LSS Vacuum Gages

Initiator(s):

Description: Determine whether LSS vacuum gages will function within the AMS-02 magnetic field.

Action Item Information

Actionee(s): Gaetan Piret/ESTEC

Action Due Date: 2/1/2006

Action: Determine whether LSS vacuum gages will function within the AMS-02 magnetic field.

Action Status:

Open Action Items Report

Open Item Number: 05-049

RID Open Date: 9/16/2005

Title: *Supercritical Startup*

Intiator(s):

Description: *Determine whether or not the TTCS pumps can be started with vapor in the pump.*

Action Item Information

Actionee(s): *Johannes Van Es/NLR*

Action Due Date: *2/1/2006*

Action: *Perform test to determine performance of the pump while pumping vapor, including expected bearing life and pressure head.*

Action Status: *2/14/2006 - Additional testing planned to determine pressure head at pump with only vapor present.
11/14/2005 - Second test has been defined to address some concerns with first test data. Initial results look very promising. Results due on 11/21.
11/10/2005 - Test complete - results expected soon.*

Open Action Items Report

Open Item Number: 05-054

RID Open Date: 9/16/2005

Title: Leak Before Burst Analysis

Intiator(s):

Description: Determine whether current condensor tube design is acceptable to NASA safety community.

Action Item Information

Actionee(s): Chris Tutt/ESCG

Action Due Date: 9/30/2005

Action: Obtain written concurrence from Glenn Ecord and Bill Manha that existing condensor tube and magnetic flange design and verification plan are acceptable.

Action Status: 11/14/2005 - Chris Tutt to arrange meeting prior to TWG meeting in Milano.
11/10/2005 - Magnetic flange added to list.

Open Action Items Report

Open Item Number: 05-060

RID Open Date: 9/16/2005

Title: ID Tolerances

Intiator(s):

Description: Assess the effect of inner diameter manufacturing tolerances on pressure drop and thawing MDP in condenser tubes.

Action Item Information

Actionee(s): Johannes Van Es/NLR

Action Due Date: 3/15/2006

Action: Assess the effect of inner diameter manufacturing tolerances on pressure drop and thawing MDP in condenser tubes.

Action Status: 11/14/2005 - Date changed to 1/3 to better reflect analyst workloads.
11/10/2005 - ECD for analysis now 11/11.

Open Action Items Report

Open Item Number: 05-065

RID Open Date: 9/16/2005

Title: TTCS Tube Routing

Initiator(s):

Description: Determine routing locations for TTCS tubes.

Action Item Information

Actionee(s): Antonio Alvino/INFN, Gerrit Van Donk/NLR

Action Due Date: 1/1/2006

Action: Upon completion of 05-064, develop detailed TTCS tubing design.

Action Status: 2/10/2006 - Preliminary design presented at TIM - details under review by Phil Mott, Robert Becker, and other critical parties.

11/14/2005 - Bracket thermal analysis complete, ECD for structural analysis is 1/1/2006.

Open Action Items Report

Open Item Number: 05-067

RID Open Date: 9/16/2005

Title: TTCS Tube Relative Displacements

Intiator(s):

Description: Provide relative displacements for TTCS tube routing areas.

Action Item Information

Actionee(s): Bruce Sommer/ESCG

Action Due Date: 1/15/2006

Action: Provide relative displacements for TTCS tube routing areas.

Action Status: 1/6/2006 - Preliminary results to be presented at upcoming TIM.
11/14/2005 - Due date changed to 1/15 to better reflect analyst workloads.

Open Action Items Report

Open Item Number: 05-068

RID Open Date: 9/16/2005

Title: Tracker Radiator Integration Jig

Intiator(s):

Description: Provide design for Tracker Raditor Integration Jig.

Action Item Information

Actionee(s): Zhenhui He/SYSU

Action Due Date: 10/31/2005

Action: Provide design for Tracker Raditor Integration Jig.

Action Status: 3/3/2006 - Johannes van Es to speak with Roberto Battiston and determine appropriate actionee.

Open Action Items Report

Open Item Number: 05-069

RID Open Date: 9/16/2005

Title: Thermal Tubing Support Beam

Intiator(s):

Description: Thermal Tubing Support Beam needs to be assessed for possible interferences with other hardware.

Action Item Information

Actionee(s): Stephen Harrison/SCL

Action Due Date: 1/3/2006

Action: Assess cryocooler LHP and TTCS tubing support beam violations into magnet Keep Out Zone.

Action Status: 11/14/2005 - Date changed to 1/3/2006 to match item 05-062.

Open Action Items Report

Open Item Number: 05-072

RID Open Date: 10/28/2005

Title: Cryogenic GSE safety information

Intiator(s): Trent Martin

Description: ESCG needs to begin work on the Phase II Ground Safety Package

Action Item Information

Actionee(s): Alexander Gretchko/MIT

Action Due Date: 1/1/2006

Action: MIT to provide details of each piece of cryogenic ground safety equipment that will be used at KSC to Art Nelson/ESCG to allow development of the Phase II Ground Safety Package. Data required includes power usage, intended usage location (on pad, in SSPF, etc.), maximum design pressure of pressurized tanks, lines, and fittings, helium venting rates and vent locations, and any special requirements.

Action Status:

Open Action Items Report

Open Item Number: 05-074

RID Open Date: 10/28/2005

Title: CGSE Support at Pad

Intiator(s): Trent Martin

Description: It is not clear how the cryogenic GSE, particularly the piping, will be supported at the pad.

Action Item Information

Actionee(s): Robert Becker/MIT, Alexander Gretchko/MIT

Action Due Date: 6/1/2006

Action: Provide details on how the GSE will be supported at the pad.

Action Status: 2/14/2006 - Alexander Gretchko waiting on information from KSC - Trent Martin to coordinate.

Open Action Items Report

Open Item Number: 05-075

RID Open Date: 10/28/2005

Title: Using magnet at ESTEC

Intiator(s): Trent Martin

Description: Using the magnet at ESTEC may be a problem due to the steel in the thermal vac chamber.

Action Item Information

Actionee(s): John Cornwell/EC, Craig Clark/ESCG, Marco Molina/CGS

Action Due Date: 12/1/2005

Action: Determine whether magnet should be operated during thermal vacuum test and provide assessment of how presence of steel will affect the outcome.

Action Status: 11/10/2005 - Joe Burger to contact ESTEC to determine all iron which is present in the chamber.

Open Action Items Report

Open Item Number: 05-076

RID Open Date: 10/28/2005

Title: GSE layouts

Intiator(s): Trent Martin

Description: Need layouts of the cryogenic GSE to support various test planning efforts.

Action Item Information

Actionee(s): Alexander Gretchko/MIT

Action Due Date: 2/1/2006

Action: MIT to provide lists of required GSE and layouts to support 1) all operations, 2) just a pump-down from 4.2K to 1.8K, 3) steady-state system maintenance.

Action Status: 2/14/2006 - Layouts received for some configurations - other configurations need to be reviewed to determine if they are still valid.

Open Action Items Report

Open Item Number: 05-080

RID Open Date: 10/28/2005

Title: Pilot Valve Vacuum Vessel Installation

Intiator(s): Trent Martin

Description: Final location of Pilot Valve Vacuum Vessel needs to be chosen.

Action Item Information

Actionee(s): Stephen Harrison/SCL, Phil Mott/ESCG

Action Due Date: 12/1/2005

Action: SCL to provide CAD model of PVVV to Phil Mott for inclusion in the overall AMS-02 CAD model. JS will then propose an attachment location on one of the VC support rings and perform a preliminary clearance assessment.

Action Status:

Open Action Items Report

Open Item Number: 05-081

RID Open Date: 10/28/2005

Title: Charged Magnet during Beam Testing

Intiator(s): Trent Martin

Description: Ferrous metals in the beam test location could interfere with the AMS-02 magnet.

Action Item Information

Actionee(s): Robert Becker/MIT

Action Due Date: 1/1/2007

Action: Robert Becker to provide CAD model of AMS test beam area clearly identifying all ferrous metals in the area so that a loads assessment can be done on the magnet.

Action Status: 3/3/3006 - Action on hold until beam test location finalized. Due date changed to 1/1/2007
2/14/2006 - Requirement for flight magnet during beam test is under review. Action may be moot.

Open Action Items Report

Open Item Number: AMS_02-CDR-06

RID Open Date: 5/1/2003

Title: AMS-CDR-1-17: Meteoroid/Orbital Debris Shielding

Intiator(s): E. Christiansen/NASA

Description: *Shielding from meteoroid/debris impact is inadequate to meet protection requirements. Shielding of pressurized vessels on AMS-02 such as the vacuum case and TRD (as well as any other pressure vessel) is required to prevent catastrophic rupture of these tanks in the event of meteoroid/debris impact which would release high-velocity fragments creating a potentially serious safety issue for on-board crew. The assessed probability of no penetration (PNP) using specified environment models is 0.97 which is far below the specified 0.997 PNP requirement. Updating ballistic limit equations and models as described in the forward work plan does not appear adequate to show compliance with requirements. Additional or significantly enhanced shielding will likely be necessary to meet safety requirements.*

Action Item Information

Actionee(s): Dana Lear/ESCG

Action Due Date: 7/1/2006

Action: *Complete analysis and coordinate design of debris shields. To be completed by Phase III Safety.*

Action Status: *2/24/2006 - Eric Christiansen provided response to request from 2/9/2005 listed below. Response under review by safety.
05/03/05 - The AMS-02 modeling for the MMOD assessment was completed last week. Additionally, the BUMPER geometry runs have been completed. Since the input scripts have not been run in years, Dana Lear verifying/updating all inputs for both the shield ballistic response definitions (BLEs) and the mission parameters.
02/09/05 - Chris Tutt sent an email to Dana Lear requesting a letter from Eric Christiansen with the requirements and his signature.
01/19/05 - L. Hill to get in touch with D. Lear to discuss what L. Hill needs for Phase II.*

Open Action Items Report

Open Item Number: AMS_02-CDR-08

RID Open Date: 5/1/2003

Title: Shear Analysis of Items in Enlarged Holes

Intiator(s): B. Ritter/GSFC

Description: Bolts attaching the support ring to the conical flange were assumed to transfer shear, even though they are in sloppy holes this is non-conservative.

Action Item Information

Actionee(s): Chris Tutt/ESCG

Action Due Date: 1/3/2006

Action: Work with SWG to resolve concerns with compliance with NASA-STD-08307, including bolts in sloppy holes being assumed to take shear.

Action Status: 11/14/2005 - Date changed to better match analyst workloads.
8/15/2005 - Analysis currently low priority. Bruce Sommer to review analyst workloads and estimate completion date.
7/22/2005 - Initial VC flange loads obtained with latest model. These loads will be used in the updated analysis.
6/17/2005 - SWG agrees that 08307 will only apply to safety critical fasteners.
5/11/2005 - Resolution plan under development. Proposal complete but needs to be written up and approved by Structures Working Group (SWG).
2/9/2005 - Action item due date was changed to May 31, 2005. Bolt analysis was done to Lockheed Martin standards. Structures Working Group (SWG) has new standards. Currently looking to see how many interfaces have issues and what needs to be done. Action item was changed from 'Work bolt concerns with the SWG.' to 'Work with SWG to resolve concerns with compliance with NASA-STD-08307, including bolts in sloppy holes being assumed to take shear.'

Open Action Items Report

Open Item Number: AMS_02-CDR-09

RID Open Date: 5/1/2003

Title: AMS-CDR-2-15: Missing Documents - Structural Analysis

Intiator(s): Murthy Pinnamaneni Structures/Boeing

Description: The following items were not available in the Data Package: design load factors, dynamic analysis procedure and results. From 2.2.1, AMS Report Outline.doc, Magnetic Strap Analysis and the Coupled Loads Analysis, which are identified to be in "separate sections." Reports/documents that include: Dynamic Loads Analysis Description; Payload/Shuttle Interface Loads; Trunnion Deflection; Trunion Misalignment Loads; and Uncertainty Factors Used in the Analysis.

Action Item Information

Actionee(s): Chris Tutt/ESCG

Action Due Date: 7/1/2006

Action: Update stress report and dynamics analyses reports. To be completed by Phase III Safety Data Pack.

Action Status:

Open Action Items Report

Open Item Number: AMS_02-PDS_CDR-06

RID Open Date: 4/18/2005

Title:

Intiator(s): Tim Urban

Description:

Action Item Information

Actionee(s): M. Cova

Action Due Date: 10/15/2005

Action: Re-evaluate thermal optical properties on the top of the PDS as there are no longer heaters located there (breakdown of MLI vs. white paint). QM & FM different ?

Action Status: 11/7/2005 - QM no longer exists, so second question is now irrelevant. All further PDS activities on hold until 6 Feb 2006.

8/2/2005 - Awaiting thermal analysis of revised worst hot case.

Open Action Items Report

Open Item Number: AMS_02-PDS_CDR-08

RID Open Date: 4/18/2005

Title:

Intiator(s): Tim Urban

Description:

Action Item Information

Actionee(s): S. Alia

Action Due Date: 5/16/2005

Action: Add 0.03 μ F per 3.2.2.2.2.A of SSP 57003, and add verification by design inspection or test.

Action Status: 11/7/2005 - All further PDS activities on hold until 6 Feb 2006.
8/22/2005 - CGS proposes release of updated document by 9/19.
8/15/2005 - Tim Urban to contact Sergio Alia and resolve remaining concerns. Closure expected by 9/5.

Open Action Items Report

Open Item Number: AMS_02-PDS_CDR-09-2

RID Open Date: 4/18/2005

Title:

Intiator(s): Tim Urban

Description:

Action Item Information

Actionee(s): S. Alia

Action Due Date: 5/16/2005

Action: Update document for maximum operating temperature of 51°C (Section 3.2, requirement ID PDS-ENV-3).

Action Status: 11/7/2005 - All further PDS activities on hold until 6 Feb 2006.
8/22/2005 - CGS proposes release of updated document by 9/19.
8/2/2005 - MOT should be changed to match updated worst case hot temperature.

Open Action Items Report

Open Item Number: AMS_02-Thermal_CDR-15

RID Open Date: 4/4/2005

Title: Inconsistent NAS1351 Bolt Yield Strengths

Intiator(s): Bruce Sommer/ESCG

Description: DISCREPANCY

Yield strength for NAS1351 bolts in OHB report is not the same as the yield strength for the same fastener type in the CGS report. This is consistent for all OHB v.s. CGS reports.

Bolt NAS1351

OHB Yield Allowable 950 MPa (138 ksi)

CGS Yield Allowable 827 MPa (120 ksi)

Action Item Information

Actionee(s): Marco Molina/CGS

Action Due Date: 3/31/2006

Action: *Find the documentation that verifies the yield strength of the fastener and update all reports to include the same allowable for the same bolt type.*

Action Status: *11/14/2006 - Date changed to 3/31/2006 to reflect contract negotiation status.*

11/7/2005 - Contract negotiations still ongoing. Best estimate for test date is now 1/ 2006.

8/10/2005 - CGS proposes test data would be available to SWG by ATP+2 months. The final analysis report would be available 2.5 months after written acceptance by SWG.

5/06/2005 - Updated document received and is under review.

4/25/2005 - Procurement specifications FFS86E for NAS1351 fasteners was sent to CGS and OHB on 04/25/05. Page 7 of the document shows a minimum yield strength for these bolts is 120 ksi.

Open Action Items Report

Open Item Number: AMS_02-Thermal_CDR-17

RID Open Date: 4/7/2005

Title: Insert test and its applicability to different size of insert

Intiator(s): H. C. Lo/NASA-JSC

Description: DISCREPANCY

Three inserts, with size 3 fastener and face sheet of material 2024, were tested. The requirement to test 12 more insert has been planned. The upcoming test will use 6061 material face sheet. Also, there are two types of inserts, namely size 3 and size 4. The test result based on size 3 and 2024 will be deemed applicable to size 4 and 6061. Rationale has to be provided to make this jump of application.

Action Item Information

Actionee(s): Marco Molina/CGS

Action Due Date: 1/31/2006

Action: Test result has to be presented and rationale given for the test applicability to cover size 4 insert and different face sheet material 6061. Test proposal end of April. Perform test ASAP

Action Status: 2/10/2006 - Test has been included in proposed CAST SOW.
1/31/2006 - Date changed to 1/31/2006 to reflect contract negotiation status.
8/8/2005 - CGS proposes ATP+2 months as projected test date.

Open Action Items Report

Open Item Number: AMS_02-Thermal_CDR-57

RID Open Date: 4/4/2005

Title: TRDGB heaters

Intiator(s): Craig Clark/ESCG

Description: DISCREPANCY

Analysis of TRDGB heaters not provided.

SUGGESTED SOLUTION

Provide analysis for TRDGB heaters

Action Item Information

Actionee(s): Ulrich Becker/MIT, Martina Green/MIT

Action Due Date: 2/15/2006

Action: *Finalize TRD Gas Supply tank heater design, then analyze system to determine maximum design pressure which could occur after any two faults in the safety circuit. Once that MDP is available, confirm that tank burst pressure and LBB analysis still meet requirements.*

Action Status: *2/14/2006 - Heaters on tanks themselves are OK, but heaters on valve boxes are single-fault tolerant. Valve MDP calculations under review.*
12/5/2005 - NASA agrees that analysis will be performed by ESCG using NASA funds. MIT to thank NASA profusely at next available opportunity.
11/7/2005 - Chris Tutt to review contract status with AMS-02 business office and determine likelihood of MIT work being accepted.
8/22/2005 - Actionees changed to Ulrich Becker and Martina Green.
8/15/2005 - Trent Martin, Paul Nemeth, and Craig Clark to meet with Ulrich Becker and discuss analysis plan.
8/3/2005 - Craig Clark to get contract status from Ulrich Becker to quell disquieting rumors.
5/19/05 - Analysis is on hold pending signed contract between JS and ETH/MIT.

Open Action Items Report

Open Item Number: AMS_02-Thermal_CDR-82

RID Open Date: 4/4/2005

Title: CAB Heater Schematic

Intiator(s): Mike Capell/AMS

Description: DISCREPANCY

Looking at Fig 4-2, pg 20, I see that the thermostats for the CAB are both placed on the return line from the heaters. Is there a reason for this ? Usually we have been placing the first one on the return line and the second one on the input line because we understood this was the "normal practice". I don't think it makes much difference - but we should stick to one way or the other, no ?

SUGGESTED SOLUTION

Need comments

SUPPLIER'S RESPONSE

Will be fixed

Action Item Information

Actionee(s): Marco Molina/CGS

Action Due Date: 3/31/2005

Action: Figure needs to be fixed.

Action Status: 11/14/2005 - Date changed to match ECD.

11/7/2005 - ECD for new heater document is 12/1.

8/10/2005 - CGS proposes completion of CAB design + 1 month for formal release date of updated heater doucment. This would currently correspond to 10/15.

Open Action Items Report

Open Item Number: AMS_02-TTCS_PDR-02

RID Open Date: 4/4/2005

Title: Thermal bars frequency analysis

Intiator(s): H. C. Lo/NASA-JSC

Description: DISCREPANCY:

1. There is no figure 11, as mentioned.
2. When TPG material is neglected, the first mode shown is to be 80 hz which is close to a test result of 84 hz. However, when the TPG material is not neglected, the comparable analytical mode (second mode at 152 hz) is much higher than the test result.

SUGGESTED SOLUTION:

Explanation of the discrepancy.

Action Item Information

Actionee(s): Eric Perrin/Universite Geneve

Action Due Date: 7/15/2005

Action: NLR to provide explanation of the discrepancy and/or update document.

Action Status: 11/7/2005 - Actionee changed to Eric Perrin.

11/4/2005 - Thermal bars part of the tracker system, not the TTCS, and have been included in the tracker FEM. Originator asked to withdraw RID.

9/9/2005 - Bart Verlaat/NIKHEF to provide detailed drawings of surrounding structure to APO. Typo to be corrected in next release of document.

8/15/2005 - Bruce Sommer to contact Divac Rapin and try to work the issue through the Tracker group instead of the TTCS group.

Open Action Items Report

Open Item Number: AMS_02-TTCS_PDR-03

RID Open Date: 4/4/2005

Title: Evaporator tail need a redesign

Intiator(s): H. C. Lo/NASA-JSC

Description: DISCREPANCY:

1. At the time of this delta CDR, section 6 still indicates a need for evaporator tail redesign due to large deformation. The large deformation is caused by evacuated vacuum case before launch.

SUGGESTED SOLUTION:

Need to present the evaporator tail redesign as soon as possible.

Action Item Information

Actionee(s): Johannes Van Es/NLR

Action Due Date: 7/15/2005

Action: NLR to provide evaporator redesign details.

Action Status: 12/14/2006 - Eric Perrin has completed new design. Bart Verlaat to perform structural analysis. Date TBD pending contract with NIKHEF.

11/7/2005 - Johannes to send details to Bruce Sommer for review.

9/9/2005 - New design to be presented at CDR.

Open Action Items Report

Open Item Number: AMS_02-TTCS_PDR-05

RID Open Date: 4/4/2005

Title: Incorrect Figure Title

Intiator(s): H. C. Lo/NASA-JSC

Description: DISCREPANCY:

Figure 15 is mention in section 6. But there is no figure 15.

SUGGESTED SOLUTION:

Correct the typo.

Action Item Information

Actionee(s): Johannes Van Es/NLR

Action Due Date: 2/6/2006

Action: NLR to correct typos in next release of document.

Action Status: 11/28/2005 - Based on new NIKHEF contract, due date changed to 2/6/2006.

11/14/2006 - Date changed to 1/3 to better reflect analyst workloads.

9/9/2005 - Typo will be corrected in next release of document.

Open Action Items Report

Open Item Number: AMS_02-TTCS_PDR-06

RID Open Date: 4/4/2005

Title: Installation deformation release

Intiator(s): H. C. Lo/NASA-JSC

Description: DISCREPANCY:

1. It is not clear how the assembly induced deformation is released after assembly. In one instance, it indicates that the 2mm deformation will be released. And in the other instance, it indicates that the 10 mm deformation is not acceptable and requires a evaporator tail redesign.
2. It is not clear how to measure the induced installation deformation. Or is there such a procedure to measure the installation deformation.

SUGGESTED SOLUTION:

1. Clarification required.
2. Implement a procedure to measure the installation deformation and set a range of acceptable installation deformation.

Action Item Information

Actionee(s): Johannes Van Es/NLR

Action Due Date: 7/15/2005

Action: NLR to clarify requirement and provide detail on how deformation will be measured.

Action Status: 11/14/2005 - Chris Tutt to contact Roberto Battiston and determine appropriate actionee.

Open Action Items Report

Open Item Number: AMS_02-TTCS_PDR-07

RID Open Date: 4/4/2005

Title: Visual inspection of the weld and fracture analysis

Intiator(s): H. C. Lo/NASA-JSC

Description: DISCREPANCY:

1. Since visual inspection will be the inspection method for post-test verification, when perform fracture analysis, the minimum crack size has to be conforming to the inspection method.
2. Is there a structural analysis performed on the welds, including fracture analysis, as required?
3. Welding is performed at room temperature. During operation, the weld will be at a much lower temperature. How do we guarantee that the weld will be performing at a much lower temperature, possibly due to residual stress?

SUGGESTED SOLUTION:

Present strength and fracture analysis.

Action Item Information

Actionee(s): Johannes Van Es/NLR

Action Due Date: 7/15/2005

Action: NLR to provide strength and fracture analysis

Action Status: 11/28/2005 - Data received at JS and is under review.

11/14/2005 - Weld procedure is available and has been sent to Dan Rybicki/ESCG for review. Johannes Van Es/NLR to supply all documentation to Bruce Sommer by 11/18 for additional review.

9/9/2005 - Weld structural and fracture analysis to be presented at TTCS CDR. NLR to coordinate requirements with Dan Rybicki.

Open Action Items Report

Open Item Number: AMS_02-TTCS_PDR-08

RID Open Date: 4/4/2005

Title: Leak integrity test still TBD

Intiator(s): H. C. Lo/NASA-JSC

Description: DISCREPANCY:
Leak Integrity test still is listed as TBD.

SUGGESTED SOLUTION:
Establish leak integrity test procedure as soon as possible.

Action Item Information

Actionee(s): Johannes Van Es/NLR

Action Due Date: 7/15/2005

Action: NLR to provide leak integrity test procedure

Action Status: 3/3/3006 - Procedure will be sent to Bruce Sommer by 3/31.
11/14/2005 - Procedure will be sent to Bruce Sommer/ESCG by 11/15.
9/9/2005 - Leak integrity test procedure to be presented at CDR.

Open Action Items Report

Open Item Number: AMS_02-TTCS_PDR-09

RID Open Date: 4/4/2005

Title: TTCS tube routing

Intiator(s): H. C. Lo/NASA-JSC

Description: DISCREPANCY:

TTCS tube routing goes along the strut into Ram and Wake radiator. Since RAM and WAKE radiator is a much flexible structure, thus it is subjected to a large deformation and deflection. How the TTCS tube routing is attached to the strut is not clear. How the TTCS tube is attached to the strut and how it is routed into the radiator can affect the stress in the tube.

SUGGESTED SOLUTION:

Present detail information about the TTCS tube routing into RAM and WAKE radiator for review.

Action Item Information

Actionee(s): Antonio Alvino/INFN, Bart Verlaet/NIKHEF

Action Due Date: 7/15/2005

Action: NLR to provide details of TTCS tube routing

Action Status: 11/7/2005 - Preliminary work done by INFN. NLR working small contract with NIKHEF to get Bart Verlaet back on task.

9/9/2005 - Tube routing details to be presented at TTCS CDR.

Open Action Items Report

Open Item Number: AMS_02-TTCS_PDR-10

RID Open Date: 4/4/2005

Title: Negative safety margin

Intiator(s): H. C. Lo/NASA-JSC

Description: DISCREPANCY:

Negative safety margins are shown in the analysis. Though the analysis is stated as rough analysis since detail information on components at this time is still not available, suggested remedy was not presented. Or different analysis approach is not attempted.

SUGGESTED SOLUTION:

Since this is a delta CDR, remedy for negative safety margin should be provided. The remedy can be re-design of the base plate/fasteners. Or the analysis can be re-done with different approach to show a positive safety margin. Leaving negative safety margin as presented is not desirable.

Action Item Information

Actionee(s): Corrado Gargiulo/INFN, Xinmei Qi/SYSU

Action Due Date: 7/15/2005

Action: NLR to provide remedy for any negative margins of safety presented at PDR.

Action Status: 3/3/2006 - Xinmei Qi has completed updated analysis and will provide report to Bruce Sommer for review.
11/14/2005 - Updated analysis will be presented at TWG meeting in Milano.
9/9/2005 - Updated analysis will be presented at TTCS CDR.

Open Action Items Report

Open Item Number: AMS_02-TTCS_PDR-11

RID Open Date: 4/4/2005

Title: Bolt and insert analysis

Intiator(s): H. C. Lo/NASA-JSC

Description: DISCREPANCY:

1. how the bolt analysis is done is not presented in the subject document.
2. bolt and insert technical information is not presented in the document.
3. it is not clear that pre-load is considered in the bolt in the analysis.

SUGGESTED SOLUTION:

Provide information and specification on bolts and inserts used.

Provide bolt and insert detail analysis, including applicable document for bolt analysis and demonstrate that bolt analysis is compliant with the applicable document.

Action Item Information

Actionee(s): Corrado Gargiulo/INFN, Xinmei Qi/SYSU

Action Due Date: 7/15/2005

Action: NLR to provide bolt details and analysis for TTCS box.

Action Status: 3/3/2006 - Xinmei Qi has completed updated analysis and will provide report to Bruce Sommer for review.
11/14/2005 - Updated analysis will be presented at TWG meeting in Milano.
9/9/2005 - Details to be provided at TTCS CDR.

Open Action Items Report

Open Item Number: AMS_02-TTCS_PDR-12

RID Open Date: 4/4/2005

Title: Finite element analysis approach and fastener analysis

Intiator(s): H. C. Lo/NASA-JSC

Description: DISCREPANCY:

1. "All box masses (including inside components) are modelled as uniformly distributed over the baseplate top face..." The box itself is not connected to the base plate. And the box has its own fastening point with USS. This assumption can be in error.
2. components/baseplate interface are connected with fasteners. It appears that there is no information on these. As such, no analysis on these fasteners.
3. No analysis provided on components within TTCB.

SUGGESTED SOLUTION:

Provide information when available.

Re-do analysis as appropriate.

The components inside TTCB has to be defined as soon as possible.

Action Item Information

Actionee(s): Corrado Gargiulo/INFN, Xinmei Qi/SYSU

Action Due Date: 7/15/2005

Action: NLR to provide design detail and finite element analysis of TTCB components.

Action Status: 3/3/2006 - Xinmei Qi has completed updated analysis and will provide report to Bruce Sommer for review.
11/14/2005 - Updated analysis will be presented at TWG meeting in Milano.
9/8/2005 - Analysis to be provided at TTCS CDR.

Open Action Items Report

Open Item Number: AMS_02-TTCS_PDR-19

RID Open Date: 4/4/2005

Title: TTCrate location

Intiator(s): Mike Capell/AMS

Description: DISCREPANCY:

Ref Fig 3-8, pg 16, TTCE location is shown incorrectly. It is on the bottom crate row. See attached CGS dwg. Of course I call it the TT-Crate. Of course the TTPD is still in the location indicated,

Action Item Information

Actionee(s): Johannes Van Es/NLR

Action Due Date: 7/15/2005

Action: NLR to update document as suggested in next release

Action Status: 3/3/2006 - Johannes Van Es to provide document to Mike Capell and Craig Clark for review.
11/14/2005 - Document to be released in time to support TWG meeting in Milano.

Open Action Items Report

Open Item Number: AMS_02-TTCS_PDR-20

RID Open Date: 4/4/2005

Title: Modes Missing

Intiator(s): Mike Capell/AMS

Description: DISCREPANCY:

Usually a document like this contains a table summarizing the first N modes (their frequency and effective mass).

It is not noted that this is being/has been performed, just a few pictures (Fig 17,18,19) are included without reference.

Action Item Information

Actionee(s): Johannes Van Es/NLR

Action Due Date: 7/15/2005

Action: NLR to provide more details in the structural analysis report.

Action Status: 3/3/2006 - Johannes Van Es to provide document to Mike Capell and Craig Clark for review.

11/14/2005 - Document to be released in time to support TWG meeting in Milano.

11/7/2005 - NLR proposes 12/1 for document release date.

Open Action Items Report

Open Item Number: AMS_02-TTCS_PDR-25

RID Open Date: 4/4/2005

Title: TTCS Heater Controls

Intiator(s): Craig Clark/ESCG

Description: DISCREPANCY:

TTCS heater controls and interlocks are not well defined. Heaters that are not two-fault tolerant need to be shown by analysis not to cause a safety problem.

Start-up heaters on tubing currently have no thermostats.

SUGGESTED SOLUTION:

Provide details for TTCS heater control (computer control, thermostats, etc). Show that all heaters are two-fault tolerant or show by analysis that a failed on heater will not cause a safety problem.

Action Item Information

Actionee(s): Johannes Van Es/NLR

Action Due Date: 6/30/2005

Action: NLR to provide details of Line heaters, including interlocks and failure analysis.

Action Status: 3/3/2006 - Johannes Van Es incorporating comments from TTCS team into updated document. Final version expected soon and will be sent to Leland Hill for inclusion in the Phase II safety package.

11/14/2005 - Results to be presented at TWG Meeting in Milano.

11/10/2005 - NLR failure analysis complete except for condensers. Results to be presented at TWG meeting in Milano.

8/3/2005 - Heaters will clearly be safety critical, so Craig Clark and Leland Hill to define required safety verifications.

Open Action Items Report

Open Item Number: UPS-CDR-04

RID Open Date:

Title:

Initiator(s):

Description:

Action Item Information

Actionee(s): Tim Urban/ESCG

Action Due Date: 1/3/2006

Action: Provide BMS qualification test report.

Action Status: 2/10/2006 - Cell test reports provided, integrated battery test reports still in work.
11/15/2005 - Date changed to 1/3 to better reflect Yardney's process.
9/2/2005 - Due to resistor problem on BMS boards, the delivery of BMS qualification test report may be delayed 3 ~ 12 weeks. Yardney is continuing to keep Tim Urban informed.